



**CONSULTATION PAPER ISSUED BY THE
INFO-COMMUNICATIONS DEVELOPMENT AUTHORITY OF SINGAPORE**

ALLOCATION OF AN ADDITIONAL 2 x 5 MHz OF 1800 MHz SPECTRUM

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PART I: INTRODUCTION

PART II: MANAGING THE SUPPLY OF 1800 MHz SPECTRUM

PART III: PROPOSED ALLOCATION FRAMEWORK

PART IV: INVITATION TO COMMENT

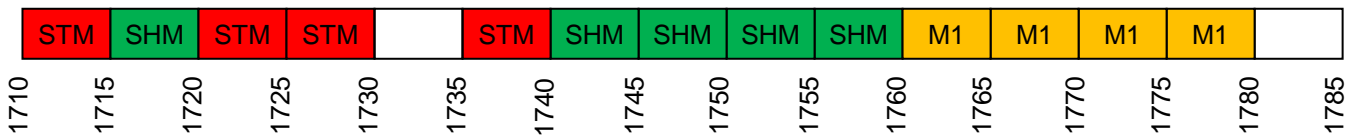
PART I: INTRODUCTION

1 The 900 MHz/EGSM (880-915 MHz/925-960 MHz) and 1800 MHz bands (1710-1785 MHz/1805-1880 MHz) have been allocated for the provision of public cellular mobile telecommunication services (“PCMTS”) in Singapore. In March 2008, a total of eighteen lots of PCMTS spectrum were assigned to SingTel Mobile, StarHub Mobile and M1. Each lot of spectrum was 2 x 5 MHz. The PCMTS Spectrum Rights took effect on 1 January 2009 and will expire on 31 March 2017.

2 In December 2008, IDA put out one additional lot of PCMTS spectrum in the 1800 MHz band for allocation after a public consultation showed industry demand for it. The spectrum lot was eventually awarded in February 2009 to SingTel Mobile following an auction process, by way of the 1800 MHz Spectrum Right. The 1800 MHz Spectrum Right was granted in February 2009 and will expire on 31 March 2017, together with the PCMTS Spectrum Rights. With the allocation of the 1800 MHz Spectrum Right to SingTel Mobile, there exist two unallocated lots in the 1800 MHz band. The current assignment of the PCMTS spectrum in the 1800 MHz band is summarised below.

1800 MHz Band

Uplink



Downlink



3 In IDA’s Decision and Explanatory Memorandum on the Allocation of Spectrum in the 1800 MHz Frequency Band dated 2 December 2008 (“IDA’s 2008 Decision”), IDA explained that the two unallocated PCMTS spectrum lots in the 1800 MHz band would be kept in reserve to cater to temporary, trial and experimental uses. Nonetheless, IDA would duly consider any requests for PCMTS spectrum on long-term assignments should there be further industry demand. IDA would also provide the industry with 3-months notice prior to the commencement of any further allocation exercise.

4 Since the award of the 1800 MHz Spectrum Right, there has been further industry demand for PCMTS spectrum in the 1800 MHz band. IDA is now seeking, through this public consultation, views on whether IDA should make available one of the two remaining lots of 1800 MHz spectrum, taking into account current and future needs for Singapore’s spectrum resources to promote innovation in, and growth of a vibrant infocomm industry in Singapore.

PART II: MANAGING THE SUPPLY OF 1800 MHZ SPECTRUM

5 Responses to the public consultations on the “Allocation of Spectrum in the 1800 MHz Frequency Band” and the “Spectrum Framework for 4G Mobile Communication Systems” suggest that the 1800 MHz band will continue to be used mainly for PCMTS, particularly 2G services, as the spectrum will be required to support legacy handsets and inbound roamers. It also appears to IDA that there could still be strong demand for 2G services, e.g. from tourists and certain market segments.

6 However, the demand for more 1800 MHz spectrum for PCMTS must be balanced with other industry needs. As explained in IDA’s 2008 Decision, IDA needs to ensure that it has sufficient 1800 MHz spectrum in reserve to cater to demand for spectrum on a temporary basis for other uses, such as technical and market trials, research and development, mobile equipment testing, etc.

7 IDA notes that the demand for the 1800 MHz spectrum for other uses on a temporary basis has not increased over the last few years. Additionally, the uses of the 1800 MHz spectrum remain mainly for mobile equipment testing and events. Under these circumstances, it would suffice for IDA to reserve one lot of 1800 MHz spectrum for temporary assignments. Given that there is industry demand for more 1800 MHz spectrum for PCMTS now, IDA is therefore considering releasing one more lot (2 x 5 MHz) of 1800 MHz spectrum (“**Additional 1800 MHz Spectrum**”) for the provision of commercial services to end-users.

8 If the allocation of the Additional 1800 MHz Spectrum proceeds, IDA would only have one lot of 2 x 5 MHz spectrum in the 1800 MHz band in reserve for temporary, trial and experimental uses. To further alleviate any potential increase in demand for short-term or ad-hoc requests for PCMTS spectrum, IDA intends to impose a general duty on the spectrum grantee to cooperate and negotiate in good faith with third parties on the use of the frequencies during major events.

Question 1

IDA invites views and comments on whether IDA should make available one 2x5 MHz Additional 1800 MHz Spectrum for PCMTS for allocation.

PART III: PROPOSED ALLOCATION FRAMEWORK

9 IDA proposes the following parameters for the allocation of the Additional 1800 MHz Spectrum, similar to the conditions imposed for the 1800 MHz Spectrum Right allocated in 2009:

- a. **Duration of spectrum right.** IDA proposes to assign the spectrum for a period of **6 years, starting on 31 March 2011 and ending 31 March 2017**. IDA is of the view that the new spectrum right should expire together with the existing PCMTS Spectrum Rights and 1800 MHz Spectrum Right to facilitate re-allocation and/or re-farming of the 1800 MHz band upon the expiry of the spectrum rights in the band. If the allocation exercise is completed earlier, IDA may consider bringing the start date of the spectrum right forward.
- b. **Lot size.** IDA proposes to allocate the additional 2 x 5 MHz of spectrum as one single lot, instead of splitting it into sub-lots. The 2 x 5 MHz lot size is consistent with the lot size in the previous allocation exercises for spectrum in the 1800 MHz band, particularly the PCMTS Spectrum Auction and the 1800 MHz Spectrum Right Auction. The successful bidder will have the flexibility to subsequently trade part of the spectrum lot with other operators, subject to IDA's approval, if it does not require the full 2 x 5 MHz.
- c. **Spectrum band.** The two lots which remain unallocated today are shown in Table 1 below. IDA notes that different bidders might accord different values to each lot, based on their current spectrum holdings and other considerations. That being the case, IDA proposes to allow the successful bidder to choose the specific lot it would like to obtain. Similar to the requirement for guard bands in the PCMTS Spectrum Auction and the 1800 MHz Spectrum Right Auction, the successful bidder will be required to provide a guard band of at least 200 kHz on the lower frequency boundaries of the lot, unless it also holds the spectrum right for the spectrum lot on the left.

Table 1: Available lots

Lot	Lower Band (MHz)	Upper Band (MHz)
A	1730-1735	1825-1830
B	1780-1785	1875-1880

- d. **Use of Spectrum.** As with the conditions of use for the other spectrum rights in the 1800 MHz band, the successful bidder will be required to use the spectrum to provide PCMTS, using 2G or 3G technologies, and other technologies which share a similar platform and allow higher speed data services, such as GPRS, EDGE or HSPA. IDA will also allow operators to provide other services such as Wireless Broadband Access using the spectrum as long as they have met the requirement to provide PCMTS.

- e. **Reserve Price and Fees.** IDA proposes to set the reserve price at S\$400,000. In setting the reserve price, IDA considered the final clearing price of the 1800 MHz Spectrum Right and the spectrum right duration for this Additional 1800 MHz Spectrum. Given that the 1800 MHz Spectrum Auction was conducted in the recent past – in February 2009 – IDA is cognisant that if operators are able to obtain the Additional 1800 MHz Spectrum on better terms than the 1800 MHz Spectrum Right, operators may be encouraged to “game” future auctions in anticipation that more spectrum would subsequently be assigned in the near future on better terms. IDA will also impose an annual spectrum fee of S\$140,000, similar to the annual spectrum fee under the PCMTS Spectrum Rights and 1800 MHz Spectrum Right. The successful bidder will also have to pay an Application and Processing fee of S\$22,500.

- f. **Eligible bidders.** IDA notes that the earlier PCMTS Spectrum Rights Auction and the 1800 MHz Spectrum Right Auction did not attract a new entrant even though new entrants were allowed to register as eligible bidders for the auction. As technology and market conditions for 2G has not changed significantly in the last 2 years, IDA is of the view that the current allocation of Additional 1800 MHz Spectrum is unlikely to attract new entrants. Further, IDA notes that as a practical matter, it would be unlikely for a new entrant to deploy a PCMTS network with only a single 2 x 5 MHz lot of spectrum in the 1800 MHz band. The allocation of the Additional 1800 MHz Spectrum is therefore likely to be used by existing PCMTS operators for network enhancement. Hence, IDA proposes to limit participation in the auction of the Additional 1800 MHz Spectrum to existing PCMTS operators unless IDA receives an indication of interest from new entrants before the allocation exercise.

- g. **Type of auction.** If there is excess demand for the Additional 1800MHz Spectrum, IDA proposes to use the ascending auction format to determine the successful bidder, similar to that adopted in the 1800 MHz Spectrum Right Auction. In such an auction, bidders bid against one another, with each subsequent bid being higher than the previous bid. The auction ends when no bidder is willing to bid higher than the standing bid.

Question 2

IDA seeks views and comments on the proposed allocation parameters.

PART IV: INVITATION TO COMMENT

10 IDA would like to seek the views and comments from the industry and members of the public on whether IDA should make available one 2 x 5 MHz lot of Additional 1800 MHz Spectrum, and on the proposed allocation framework if the spectrum is to be allocated. This will allow IDA to have a better understanding of the issues and the different needs and requirements of various interested parties.

11 All views and comments should be submitted in writing and in both hard and soft copies (Microsoft Word Format), and should reach IDA by **12 noon, 29 December 2010**. Respondents are required to include their personal or company particulars, correspondence address, contact number and email address in their submissions. IDA will make all or parts of any submissions made in response to this consultation paper public and disclose the identity of the source. Any part of the submission which is considered commercially sensitive must be clearly marked and placed as an annex to the comments raised. IDA will take this into account in its review. All comments should be addressed to:

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AND

Please submit your soft copies via email to IDA_consultation@ida.gov.sg